

What is claimed is:

1. A chimeric enzyme, comprising:
a starting enzyme which is a polypeptide; and
a mimotope comprising at least one amino acid, which
mimotope is inserted into the starting enzyme or which replaces
at least one amino acid of the starting enzyme, such insertion or
replacement yielding the chimeric enzyme, wherein the chimeric
enzyme has an enzymatic activity of the starting enzyme and
whereby the activity of the chimeric enzyme is modulated upon
binding of a binding molecule to the mimotope.
2. A chimeric enzyme of claim 1, wherein the binding
molecule binds to an active conformation of the chimeric enzyme.
3. A chimeric enzyme of claim 1, wherein the binding
molecule binds to an inactive conformation of the chimeric
enzyme.
4. A chimeric enzyme of claim 1, wherein the binding
molecule is an antibody.
5. A chimeric enzyme of claim 1, wherein the binding
molecule, upon binding to the chimeric enzyme, shifts the
equilibrium to an inactive conformation.

6. A chimeric enzyme of claim 1, wherein binding of the binding molecule to the chimeric enzyme inactivates the enzymatic activity of the chimeric enzyme.

7. A chimeric enzyme of claim 1, wherein binding of the binding molecule to the chimeric enzyme activates the enzymatic activity of the chimeric enzyme.

8. A chimeric enzyme of claim 1, wherein the mimotope is inserted into an area remote from the active site of the chimeric enzyme.

9. A chimeric enzyme of claim 1, wherein the mimotope consists of ten or less amino acids.

10. A chimeric enzyme of claim 1, wherein the mimotope is a random peptide sequence.

11. A chimeric enzyme of claim 1, wherein the starting enzyme is β -lactamase.

12. An isolated nucleic acid comprising a coding sequence for the chimeric enzyme of claim 1.

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13. A method for determining the presence or amount of an analyte in a test sample, comprising:

contacting the chimeric enzyme of claim 1 with a (1) test sample, (2) a binding molecule which binds to a mimotope of the chimeric enzyme, and (3) a substrate upon which the chimeric enzyme catalytically acts, to form a reaction mixture; and

detecting the amount of catalysis of the substrate achieved by the chimeric enzyme, wherein the binding molecule modulates the catalysis by the chimeric enzyme.

14. A method of claim 13, wherein the analyte competes with the chimeric enzyme for binding to the binding molecule.

15. A method of claim 13, wherein the analyte is prostate-specific antigen.

16. A method of claim 13, wherein the test sample is serum.

17. A method of claim 13, wherein the test sample contains the analyte.

18. A method of claim ¹³~~15~~, wherein the binding molecule is said analyte.

19. A method of claim 13, wherein the binding molecule is an antibody.

20. A method for determining the presence or amount of an analyte in a test sample, comprising:

contacting the chimeric enzyme of claim 1 with a (1) test sample and (2) a substrate upon which the chimeric enzyme catalytically acts, to form a reaction mixture; and

detecting the amount of catalysis of the substrate achieved by the chimeric enzyme, wherein the analyte modulates the catalysis by the chimeric enzyme.

21. A method of claim 20, wherein the analyte and substrate contact the enzyme simultaneously.

22. A method of claim 20, wherein the analyte is contacted with the chimeric first.

23. A method of claim 20, wherein the analyte is an antibody.

24. A method of claim 20, wherein the starting enzyme is β -lactamase.

25. A method of claim 20, wherein the test sample contains the analyte.

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Add 24